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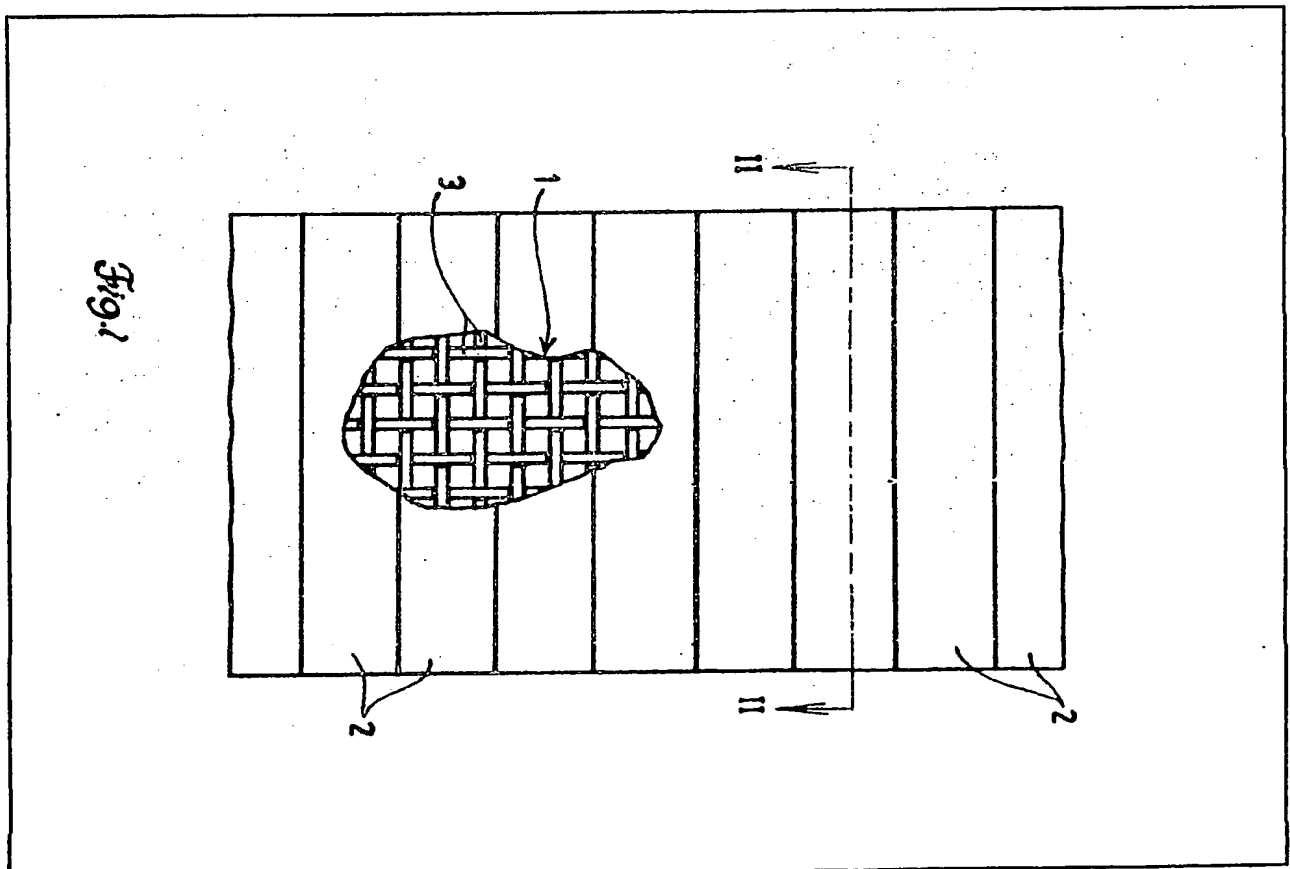
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(54) Insulating covering

(57) An insulating covering comprises loose strips 2 of fibrous insulating material, only one surface of the strips being connected with a flexible support layer 1. The fibres

of the strips extend substantially perpendicular to the support layer which preferably consists of glass filament fabric. The strips are fixed by means of an adhesive such as polyethylene 3. The fibres of the strips consist of e.g. rock wool fibers.



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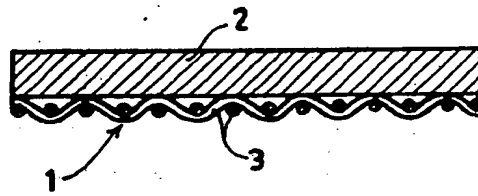
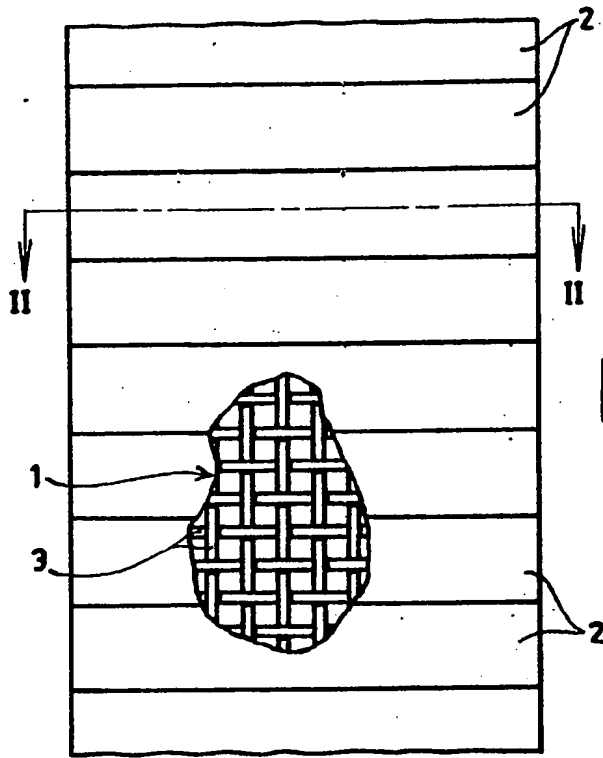


FIG: 2.

FIG: 1.

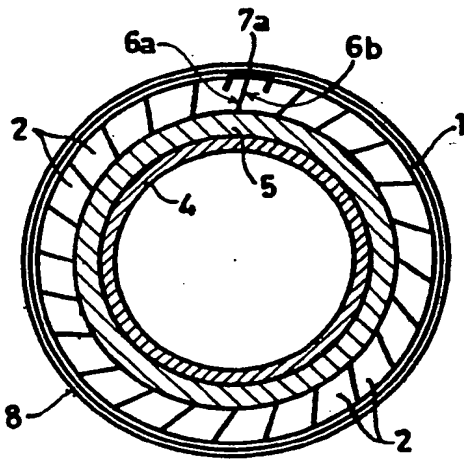


FIG: 3.

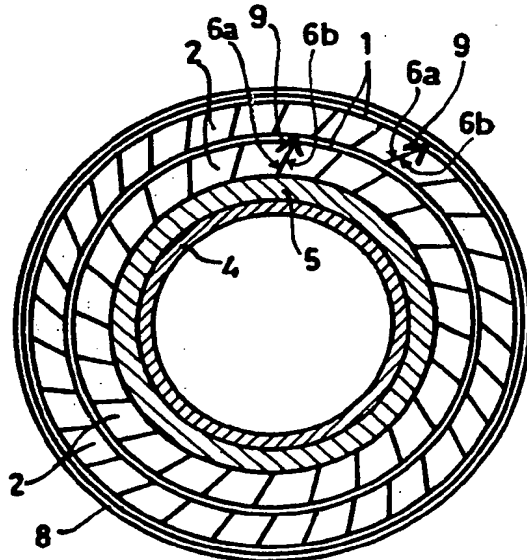


FIG: 4.

SPECIFICATION

Insulating covering

- 5 The invention relates to an insulating covering composed of a fibrous mineral material.

Such an insulating covering of mineral wool material, such as rock wool material, in the form of tube-insulating encasings, is known in the art. In general, such tube-insulating encasings, which, after making a lengthwise cutting, are applied around the tube, are quite satisfactory.

When insulating tubular conduits having very large diameters, as used in heat media transfer for heating purposes, one is frequently faced with the fact, however, that the equipment thus far available does not afford the manufacture of tube-insulating encasings having a diameter which is such that they can be arranged around tubes having such large diameters. As a result, there is no choice but to acquire new equipment for manufacturing tube-insulating encasings which have a diameter such that the encasements obtained are suitable for insulating tubes having larger diameters.

This leads to very high costs for investment, while, in addition, there arises serious problems when fitting such large tube-insulating encasings.

Accordingly, the object of the invention is to provide an insulating covering made of fibrous mineral material which is well suited for the insulation of tubes having very large diameters, without having to use new and expensive equipment for manufacturing tube-insulating encasings having very large diameters, it being moreover very simple to fit such insulating coverings.

According to the invention, this object is attained in that the insulating covering consists of strips of fibrous mineral material fastened to a flexible support layer.

Such an insulating covering, consisting of strips of fibrous mineral material attached to a flexible support layer, can be easily placed around a tube of any desired diameter, whereupon, after cutting off the desired length of such an insulating covering layer, the superimposed layers of the flexible support layer can be interconnected to each other.

The flexible support layer is also very preferably composed of a fibrous material, in particular a glass filament fabric.

In order to fasten the strips of fibrous mineral material to the flexible support layer, it is preferable to use an adhesive agent, in particular a thermoplastic material, very suitably in the form of a polyolefin, preferably polyethylene. The adhesive may be present in the form of a closed layer or may be applied dotwise and/or stripwise. So as to improve the properties of the insulating covering of the invention it is advisable to apply the thermo-

plastic material in the form of stripes which effectively constitute a network.

The strips of fibrous mineral material advantageously consist of segments of, for example, fibrous mineral material such as rock wool material.

The invention further relates to an insulated tube provided with an insulating covering which is composed of a fibrous mineral material and which is characterized in that the insulating covering consists of strips of fibrous mineral material attached to a flexible support layer, the layers superimposed on the outside of the insulated tube being joined together.

It will be evident that the insulating covering layer according to the invention does not have to be applied directly to a tube to be insulated, but may serve for instance as the outermost covering layer for a tubular conduit already provided with an insulating cover which is, however, insufficient for obtaining the insulation desired.

The insulating covering of the invention can be attached quite easily, since it is possible to secure the attachment desired between the superimposed layers by means of a metal clamp through the flexible support layer.

It is especially advisable to use a glass filament fabric for the support layer as such fabric is non-rotting, so as to obtain also in humid conditions an aging-resistant sheath of the insulating material.

In order to obtain a temperature-resistant, waterrepellent quality, it may be advisable in certain cases to add a water-repellent substance, such as a mineral oil, to the strips of fibrous mineral material.

The strips of fibrous mineral material may have for instance a density of 50 to 60 kg/cubic meter, but this does not imply any restriction whatsoever.

The invention will now be further explained with reference to an exemplified embodiment with the aid of the drawing, wherein:

Figure 1 shows an insulating covering sheet according to the invention, from which part of the insulating material has been removed;

Figure 2 is a sectional view of such a sheet taken on the line II-II;

Figure 3 is a sectional view of a tubular conduit provided with an insulating covering according to the invention, and

Figure 4 is a sectional view of a tubular conduit having an insulating covering in two layers.

Fig. 1 shows a glass filament fabric 1, on which there are fixed, adjoining each other, strips 2 of a fibrous mineral material, such as rock wool material. These loose strips have a thickness of, for instance, 5 to 6 cm, a width of 13 to 17 cm, and a length of 1 m, if the glass filament fabric 1 has a width of 0.5 m. It will be clear that the length of the strips is adapted to the width of the glass filament fabric 1.

A network 3 of polyethylene is used to affix a strip of fibrous mineral material 2 to the glass filament fabric 1. This layer of polyethylene in the form of a network provides a very good attachment of the loose strips of fibrous mineral material to the glass filament fabric.

It will also be clear that by applying the polyethylene covering in the form of a network on the glass filament fabric, there is ultimately obtained a vapor-diffusion-open insulating covering.

In addition, by utilizing glass filaments, an aging-resistant sheathing of the insulating material is obtained.

The strips of fibrous mineral material have, for instance, a density of 50 to 60 kg/cubic meter, a water-repellent substance, such as a mineral oil, possibly being included in the fibrous mineral material.

Thus, there are obtained a compression resistance in the same order of magnitude as in the case of tube encasements, a temperature-resistant water-repellent quality and a flexibility around the outside of tubular heat conduits for which such insulating coverings are most frequently used.

Fig. 3 shows one layer of an insulating covering according to the invention in the finished condition around a tubular conduit.

The exterior of this tubular conduit 4 is covered with an insulating sleeve 5 of rock wool which is commonly known.

Around this sleeve 5 there is provided an insulating covering layer according to the invention, the adjoining edge areas 6a, 6b of the insulating covering layer being held together by means of a retaining means, for instance, in the form of a stainless-steel brace 7a. As shown, the loose strips 2 of the fibrous mineral material, only attached at one side to the fabric 1 by means of the polyethylene network 3, are then slightly deformed on their inside so as to obtain an adaptation of the insulating layer to the round shape of the tube. As a result of the open structure of the glass filament fabric 1 and of the polyethylene network 3, moisture, if any, penetrated through the segments can evaporate quickly.

However, it is also possible to superimpose two such coverings one upon the other, in which case the edge areas 6a, 6b may also be connected to each other by clamps 9. In order to prevent water from penetrating into the strips of fibrous mineral material, the whole may be surrounded with a waterproof layer, for example a bituminized paper layer or a waterproof plastic foil 8, such as polyethylene foil so that water cannot reach the insulating material.

The strips of fibrous mineral material are preferably formed by loose strips wherein the fibers are substantially vertical with respect to the support layer. This ensures a very good resistance to compressive stresses and, on the other hand, provides a good compressibility of

the free ends of the strips when placing the insulating covering around a tube.

Such strips are obtained by cutting a mineral fiber plate, in which the fibers extend longitudinally, right across the longitudinal direction of the fibers.

CLAIMS

1. Insulating covering composed of a fibrous mineral material, characterized in that the insulating covering consists of strips of fibrous mineral material attached to a flexible support layer.
2. Insulating covering according to claim 1, characterized in that the flexible support layer consists of fibrous material.
3. Insulating covering according to claim 1 or 2, characterized in that the flexible support layer consists of a glass filament fabric.
4. Insulating covering according to claims 1-3, characterized in that the strips of fibrous mineral material are attached to the flexible support layer by means of an adhesive agent.
5. Insulating covering according to claim 4, characterized in that the adhesive agent consists of a thermoplastic material.
6. Insulating covering according to claim 4 or 5, characterized in that the thermoplastic material consists of polyolefins.
7. Insulating covering according to claims 4-6, characterized in that the adhesive agent forms a covering layer.
8. Insulating covering according to claims 4-6, characterized in that the adhesive agent is applied stripwise or dotwise, preferably in the form of a network.
9. Insulating covering according to claim 5, characterized in that the adhesive agent consists of polyethylene.
10. Insulating covering according to one or several of the preceding claims, characterized in that the strips of fibrous mineral material consist of loose strips adjoining each other and only connected by one strip surface with the support layer, said strips being composed of fibers which are preferably vertical with respect to the support.
11. Insulating covering according to one or several of the preceding claims, characterized in that the strips of fibrous mineral material consist of rock wool.
12. Insulated tube, provided with an insulating covering composed of a fibrous mineral material, characterized in that the insulating covering consists of strips of fibrous mineral material attached to a flexible support layer, the layers of the flexible support layer, which are superimposed on the outside of the insulated tube, being joined together.
13. Insulated tube according to claim 12, characterized in that the flexible support layer is composed of a fibrous material.
14. Insulated tube according to claims 12 or 13, characterized in that the flexible sup-

port layer consists of a glass filament fabric.

15. Insulated tube according to claims 12 to 14, characterized in that the strips of fibrous mineral material are affixed to the flexible support layer by means of an adhesive agent.

16. Insulated tube according to claim 15, characterized in that the adhesive agent is a thermoplastic material.

10 17. Insulated tube according to claims 9-12, characterized in that the thermoplastic material consists of a polyolefin.

18. Insulated tube according to claim 17, characterized in that the thermoplastic material consists of polyethylene.

19. Insulated tube according to claims 15-18, characterized in that the adhesive agent forms a closed covering.

20. Insulated tube according to claims 15-18, characterized in that the adhesive agent is applied stripwise and/or dotwise, preferably in the form of a network.

21. Insulated tube according to claims 12 to 20, characterized in that the strips of fibrous mineral material are formed by loose strips adjoining each other and only connected by one strip surface with the support layer, said strips being composed of fibers which are preferably vertical with respect to the support.

22. Insulated tube according to one or several of the claims 9 to 15, characterized in that the strips of fibrous mineral material consist of rock wool.

23. Insulated tube according to claims 12-22, characterized in that a waterproof layer is arranged around the outside of the insulating covering.

24. Insulated tube according to claim 23, characterized in that the waterproof layer consists of a bituminized paper layer or plastic foil.

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